

SEQUENCE LISTING

<110> Proteopharma ApS

<120> Apolipoprotein analogues

<130> P 459 PC00

<150> DK PA 2000 01682

<151> 2000-11-10

<150> DK PA 2001 00057

<151> 2001-01-15

<150> US 60/264,022

<151> 2001-01-26

<160> 14

<170> PatentIn version 3.1

<210> 1

<211> 243

<212> PRT

<213> Homo sapiens

<400> 1

Asp Glu Pro Pro Gln Ser Pro Trp Asp Arg Val Lys Asp Leu Ala Thr  
1 5 10 15

Val Tyr Val Asp Val Leu Lys Asp Ser Gly Arg Asp Tyr Val Ser Gln  
20 25 30

Phe Glu Gly Ser Ala Leu Gly Lys Gln Leu Asn Leu Lys Leu Leu Asp  
35 40 45

Asn Trp Asp Ser Val Thr Ser Thr Phe Ser Lys Leu Arg Glu Gln Leu  
50 55 60

Gly Pro Val Thr Gln Glu Phe Trp Asp Asn Leu Glu Lys Glu Thr Glu  
65 70 75 80

Gly Leu Arg Gln Glu Met Ser Lys Asp Leu Glu Glu Val Lys Ala Lys  
85 90 95

Val Gln Pro Tyr Leu Asp Asp Phe Gln Lys Lys Trp Gln Glu Glu Met  
100 105 110

Glu Leu Tyr Arg Gln Lys Val Glu Pro Leu Arg Ala Glu Leu Gln Glu  
115 120 125

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Gly Ala Arg Gln Lys Leu His Glu Leu Gln Glu Lys Leu Ser Pro Leu  
130 135 140

Gly Glu Glu Met Arg Asp Arg Ala Arg Ala His Val Asp Ala Leu Arg  
145 150 155 160

Thr His Leu Ala Pro Tyr Ser Asp Glu Leu Arg Gln Arg Leu Ala Ala  
165 170 175

Arg Leu Glu Ala Leu Lys Glu Asn Gly Gly Ala Arg Leu Ala Glu Tyr  
180 185 190

His Ala Lys Ala Thr Glu His Leu Ser Thr Leu Ser Glu Lys Ala Lys  
195 200 205

Pro Ala Leu Glu Asp Leu Arg Gln Gly Leu Leu Pro Val Leu Glu Ser  
210 215 220

Phe Lys Val Ser Phe Leu Ser Ala Leu Glu Glu Tyr Thr Lys Lys Leu  
225 230 235 240

Asn Thr Gln

<210> 2  
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<222> (1)..(1)  
<223> N-terminal Cys

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<223> Amino acid no 25 to 267 from human Apo A1

<400> 2

Cys Asp Glu Pro Pro Gln Ser Pro Trp Asp Arg Val Lys Asp Leu Ala  
1 5 10 15

Thr Val Tyr Val Asp Val Leu Lys Asp Ser Gly Arg Asp Tyr Val Ser  
20 25 30

Gln Phe Glu Gly Ser Ala Leu Gly Lys Gln Leu Asn Leu Lys Leu Leu

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35	40	45
Asp Asn Trp Asp Ser Val Thr Ser Thr Phe Ser Lys Leu Arg Glu Gln		
50	55	60
Leu Gly Pro Val Thr Gln Glu Phe Trp Asp Asn Leu Glu Lys Glu Thr		
65	70	75 80
Glu Gly Leu Arg Gln Glu Met Ser Lys Asp Leu Glu Glu Val Lys Ala		
	85	90 95
Lys Val Gln Pro Tyr Leu Asp Asp Phe Gln Lys Lys Trp Gln Glu Glu		
	100	105 110
Met Glu Leu Tyr Arg Gln Lys Val Glu Pro Leu Arg Ala Glu Leu Gln		
	115	120 125
Glu Gly Ala Arg Gln Lys Leu His Glu Leu Gln Glu Lys Leu Ser Pro		
	130	135 140
Leu Gly Glu Glu Met Arg Asp Arg Ala Arg Ala His Val Asp Ala Leu		
	145	150 155 160
Arg Thr His Leu Ala Pro Tyr Ser Asp Glu Leu Arg Gln Arg Leu Ala		
	165	170 175
Ala Arg Leu Glu Ala Leu Lys Glu Asn Gly Gly Ala Arg Leu Ala Glu		
	180	185 190
Tyr His Ala Lys Ala Thr Glu His Leu Ser Thr Leu Ser Glu Lys Ala		
	195	200 205
Lys Pro Ala Leu Glu Asp Leu Arg Gln Gly Leu Leu Pro Val Leu Glu		
	210	215 220
Ser Phe Lys Val Ser Phe Leu Ser Ala Leu Glu Glu Tyr Thr Lys Lys		
	225	230 235 240
Leu Asn Thr Gln		

<210> 3  
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 <223> Trimerisation module from tetranectin

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<400> 3

Ser Pro Gly Thr Glu Pro Pro Thr Gln Lys Pro Lys Lys Ile Val Asn  
 1 5 10 15

Ala Lys Lys Asp Val Val Asn Thr Lys Met Phe Glu Glu Leu Lys Ser  
 20 25 30

Arg Leu Asp Thr Leu Ala Gln Glu Val Ala Leu Leu Lys Glu Gln Gln  
 35 40 45

Ala Leu Gln Thr Val Ser Leu Lys Gly Ser Asp Glu Pro Pro Gln Ser  
 50 55 60

Pro Trp Asp Arg Val Lys Asp Leu Ala Thr Val Tyr Val Asp Val Leu  
 65 70 75 80

Lys Asp Ser Gly Arg Asp Tyr Val Ser Gln Phe Glu Gly Ser Ala Leu  
 85 90 95

Gly Lys Gln Leu Asn Leu Lys Leu Leu Asp Asn Trp Asp Ser Val Thr  
 100 105 110

Ser Thr Phe Ser Lys Leu Arg Glu Gln Leu Gly Pro Val Thr Gln Glu  
 115 120 125

Phe Trp Asp Asn Leu Glu Lys Glu Thr Glu Gly Leu Arg Gln Glu Met  
 130 135 140

Ser Lys Asp Leu Glu Glu Val Lys Ala Lys Val Gln Pro Tyr Leu Asp  
 145 150 155 160

Asp Phe Gln Lys Lys Trp Gln Glu Glu Met Glu Leu Tyr Arg Gln Lys  
 165 170 175

Val Glu Pro Leu Arg Ala Glu Leu Gln Glu Gly Ala Arg Gln Lys Leu  
 180 185 190

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His Glu Leu Gln Glu Lys Leu Ser Pro Leu Gly Glu Glu Met Arg Asp  
195 200 205

Arg Ala Arg Ala His Val Asp Ala Leu Arg Thr His Leu Ala Pro Tyr  
210 215 220

Ser Asp Glu Leu Arg Gln Arg Leu Ala Ala Arg Leu Glu Ala Leu Lys  
225 230 235 240

Glu Asn Gly Gly Ala Arg Leu Ala Glu Tyr His Ala Lys Ala Thr Glu  
245 250 255

His Leu Ser Thr Leu Ser Glu Lys Ala Lys Pro Ala Leu Glu Asp Leu  
260 265 270

Arg Gln Gly Leu Leu Pro Val Leu Glu Ser Phe Lys Val Ser Phe Leu  
275 280 285

Ser Ala Leu Glu Glu Tyr Thr Lys Lys Leu Asn Thr Gln  
290 295 300

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Ser Pro Gly Thr Glu Pro Pro Thr Gln Lys Pro Lys Lys Ile Val Asn  
1 5 10 15

Ala Lys Lys Asp Val Val Asn Thr Lys Met Phe Glu Glu Leu Lys Ser  
20 25 30

Arg Leu Asp Thr Leu Ala Gln Glu Val Ala Leu Leu Lys Glu Gln Gln  
35 40 45

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Ala Leu Gln Thr Val Ser Leu Lys Gly Ser Leu Lys Leu Leu Asp Asn  
50 55 60

Trp Asp Ser Val Thr Ser Thr Phe Ser Lys Leu Arg Glu Gln Leu Gly  
65 70 75 80

Pro Val Thr Gln Glu Phe Trp Asp Asn Leu Glu Lys Glu Thr Glu Gly  
85 90 95

Leu Arg Gln Glu Met Ser Lys Asp Leu Glu Glu Val Lys Ala Lys Val  
100 105 110

Gln Pro Tyr Leu Asp Asp Phe Gln Lys Lys Trp Gln Glu Glu Met Glu  
115 120 125

Leu Tyr Arg Gln Lys Val Glu Pro Leu Arg Ala Glu Leu Gln Glu Gly  
130 135 140

Ala Arg Gln Lys Leu His Glu Leu Gln Glu Lys Leu Ser Pro Leu Gly  
145 150 155 160

Glu Glu Met Arg Asp Arg Ala Arg Ala His Val Asp Ala Leu Arg Thr  
165 170 175

His Leu Ala Pro Tyr Ser Asp Glu Leu Arg Gln Arg Leu Ala Ala Arg  
180 185 190

Leu Glu Ala Leu Lys Glu Asn Gly Gly Ala Arg Leu Ala Glu Tyr His  
195 200 205

Ala Lys Ala Thr Glu His Leu Ser Thr Leu Ser Glu Lys Ala Lys Pro  
210 215 220

Ala Leu Glu Asp Leu Arg Gln Gly Leu Leu Pro Val Leu Glu Ser Phe  
225 230 235 240

Lys Val Ser Phe Leu Ser Ala Leu Glu Glu Tyr Thr Lys Lys Leu Asn  
245 250 255

Thr Gln

<210> 5  
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<213> Homo sapiens

<220>

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<222> (1)..(58)

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<222> (59)..(301)

<223> Apo-AI mature

<400> 5

Ser Pro Gly Thr Glu Pro Pro Thr Gln Lys Pro Lys Ala Ile Val Asn  
1 5 10 15

Ala Lys Ala Asp Val Val Asn Thr Lys Met Phe Glu Glu Leu Lys Ser  
20 25 30

Arg Leu Asp Thr Leu Ala Gln Glu Val Ala Leu Leu Lys Glu Gln Gln  
35 40 45

Ala Leu Gln Thr Val Ser Leu Lys Gly Ser Asp Glu Pro Pro Gln Ser  
50 55 60

Pro Trp Asp Arg Val Lys Asp Leu Ala Thr Val Tyr Val Asp Val Leu  
65 70 75 80

Lys Asp Ser Gly Arg Asp Tyr Val Ser Gln Phe Glu Gly Ser Ala Leu  
85 90 95

Gly Lys Gln Leu Asn Leu Lys Leu Leu Asp Asn Trp Asp Ser Val Thr  
100 105 110

Ser Thr Phe Ser Lys Leu Arg Glu Gln Leu Gly Pro Val Thr Gln Glu  
115 120 125

Phe Trp Asp Asn Leu Glu Lys Glu Thr Glu Gly Leu Arg Gln Glu Met  
130 135 140

Ser Lys Asp Leu Glu Glu Val Lys Ala Lys Val Gln Pro Tyr Leu Asp  
145 150 155 160

Asp Phe Gln Lys Lys Trp Gln Glu Glu Met Glu Leu Tyr Arg Gln Lys  
165 170 175

Val Glu Pro Leu Arg Ala Glu Leu Gln Glu Gly Ala Arg Gln Lys Leu  
180 185 190

His Glu Leu Gln Glu Lys Leu Ser Pro Leu Gly Glu Glu Met Arg Asp  
195 200 205

Arg Ala Arg Ala His Val Asp Ala Leu Arg Thr His Leu Ala Pro Tyr  
210 215 220

Ser Asp Glu Leu Arg Gln Arg Leu Ala Ala Arg Leu Glu Ala Leu Lys  
225 230 235 240

Glu Asn Gly Gly Ala Arg Leu Ala Glu Tyr His Ala Lys Ala Thr Glu  
245 250 255

His Leu Ser Thr Leu Ser Glu Lys Ala Lys Pro Ala Leu Glu Asp Leu  
260 265 270

Arg Gln Gly Leu Leu Pro Val Leu Glu Ser Phe Lys Val Ser Phe Leu  
275 280 285

Ser Ala Leu Glu Glu Tyr Thr Lys Lys Leu Asn Thr Gln  
290 295 300

<210> 6  
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<220>  
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<222> (59)..(61)  
<223> Linker



<220>  
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 <222> (62)..(304)  
 <223> Mature Apo-AI

<400> 6

Ser Pro Gly Thr Glu Pro Pro Thr Gln Lys Pro Lys Lys Ile Val Asn  
 1 5 10 15

Ala Lys Lys Asp Val Val Asn Thr Lys Met Phe Glu Glu Leu Lys Ser  
 20 25 30

Arg Leu Asp Thr Leu Ala Gln Glu Val Ala Leu Leu Lys Glu Gln Gln  
 35 40 45

Ala Leu Gln Thr Val Ser Leu Lys Gly Ser Ser Gly His Asp Glu Pro  
 50 55 60

Pro Gln Ser Pro Trp Asp Arg Val Lys Asp Leu Ala Thr Val Tyr Val  
 65 70 75 80

Asp Val Leu Lys Asp Ser Gly Arg Asp Tyr Val Ser Gln Phe Glu Gly  
 85 90 95

Ser Ala Leu Gly Lys Gln Leu Asn Leu Lys Leu Leu Asp Asn Trp Asp  
 100 105 110

Ser Val Thr Ser Thr Phe Ser Lys Leu Arg Glu Gln Leu Gly Pro Val  
 115 120 125

Thr Gln Glu Phe Trp Asp Asn Leu Glu Lys Glu Thr Glu Gly Leu Arg  
 130 135 140

Gln Glu Met Ser Lys Asp Leu Glu Glu Val Lys Ala Lys Val Gln Pro  
 145 150 155 160

Tyr Leu Asp Asp Phe Gln Lys Lys Trp Gln Glu Glu Met Glu Leu Tyr  
 165 170 175

Arg Gln Lys Val Glu Pro Leu Arg Ala Glu Leu Gln Glu Gly Ala Arg  
 180 185 190

Gln Lys Leu His Glu Leu Gln Glu Lys Leu Ser Pro Leu Gly Glu Glu  
 195 200 205



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Ala Leu Gln Thr Val Ser Leu Lys Gly Thr Ser Gly Gln Asp Glu Pro  
50 55 60

Pro Gln Ser Pro Trp Asp Arg Val Lys Asp Leu Ala Thr Val Tyr Val  
65 70 75 80

Asp Val Leu Lys Asp Ser Gly Arg Asp Tyr Val Ser Gln Phe Glu Gly  
85 90 95

Ser Ala Leu Gly Lys Gln Leu Asn Leu Lys Leu Leu Asp Asn Trp Asp  
100 105 110

Ser Val Thr Ser Thr Phe Ser Lys Leu Arg Glu Gln Leu Gly Pro Val  
115 120 125

Thr Gln Glu Phe Trp Asp Asn Leu Glu Lys Glu Thr Glu Gly Leu Arg  
130 135 140

Gln Glu Met Ser Lys Asp Leu Glu Glu Val Lys Ala Lys Val Gln Pro  
145 150 155 160

Tyr Leu Asp Asp Phe Gln Lys Lys Trp Gln Glu Glu Met Glu Leu Tyr  
165 170 175

Arg Gln Lys Val Glu Pro Leu Arg Ala Glu Leu Gln Glu Gly Ala Arg  
180 185 190

Gln Lys Leu His Glu Leu Gln Glu Lys Leu Ser Pro Leu Gly Glu Glu  
195 200 205

Met Arg Asp Arg Ala Arg Ala His Val Asp Ala Leu Arg Thr His Leu  
210 215 220

Ala Pro Tyr Ser Asp Glu Leu Arg Gln Arg Leu Ala Ala Arg Leu Glu  
225 230 235 240

Ala Leu Lys Glu Asn Gly Gly Ala Arg Leu Ala Glu Tyr His Ala Lys  
245 250 255

Ala Thr Glu His Leu Ser Thr Leu Ser Glu Lys Ala Lys Pro Ala Leu  
260 265 270

Glu Asp Leu Arg Gln Gly Leu Leu Pro Val Leu Glu Ser Phe Lys Val  
275 280 285

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Ser Phe Leu Ser Ala Leu Glu Glu Tyr Thr Lys Lys Leu Asn Thr Gln  
290 295 300

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<222> (57)..(61)  
<223> Fibronectin based linker

<220>  
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<222> (62)..(304)  
<223> Mature Apo-AI

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<223>

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<222> (19)..(19)  
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<400> 8

Ser Pro Gly Thr Glu Pro Pro Thr Gln Lys Pro Lys Ala Ile Val Asn  
1 5 10 15

Ala Lys Ala Asp Val Val Asn Thr Lys Met Phe Glu Glu Leu Lys Ser  
20 25 30

Arg Leu Asp Thr Leu Ala Gln Glu Val Ala Leu Leu Lys Glu Gln Gln  
35 40 45

Ala Leu Gln Thr Val Ser Leu Lys Gly Thr Ser Gly Gln Asp Glu Pro  
50 55 60

Pro Gln Ser Pro Trp Asp Arg Val Lys Asp Leu Ala Thr Val Tyr Val

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65 70 75 80

Asp Val Leu Lys Asp Ser Gly Arg Asp Tyr Val Ser Gln Phe Glu Gly  
85 90 95

Ser Ala Leu Gly Lys Gln Leu Asn Leu Lys Leu Leu Asp Asn Trp Asp  
100 105 110

Ser Val Thr Ser Thr Phe Ser Lys Leu Arg Glu Gln Leu Gly Pro Val  
115 120 125

Thr Gln Glu Phe Trp Asp Asn Leu Glu Lys Glu Thr Glu Gly Leu Arg  
130 135 140

Gln Glu Met Ser Lys Asp Leu Glu Glu Val Lys Ala Lys Val Gln Pro  
145 150 155 160

Tyr Leu Asp Asp Phe Gln Lys Lys Trp Gln Glu Glu Met Glu Leu Tyr  
165 170 175

Arg Gln Lys Val Glu Pro Leu Arg Ala Glu Leu Gln Glu Gly Ala Arg  
180 185 190

Gln Lys Leu His Glu Leu Gln Glu Lys Leu Ser Pro Leu Gly Glu Glu  
195 200 205

Met Arg Asp Arg Ala Arg Ala His Val Asp Ala Leu Arg Thr His Leu  
210 215 220

Ala Pro Tyr Ser Asp Glu Leu Arg Gln Arg Leu Ala Ala Arg Leu Glu  
225 230 235 240

Ala Leu Lys Glu Asn Gly Gly Ala Arg Leu Ala Glu Tyr His Ala Lys  
245 250 255

Ala Thr Glu His Leu Ser Thr Leu Ser Glu Lys Ala Lys Pro Ala Leu  
260 265 270

Glu Asp Leu Arg Gln Gly Leu Leu Pro Val Leu Glu Ser Phe Lys Val  
275 280 285

Ser Phe Leu Ser Ala Leu Glu Glu Tyr Thr Lys Lys Leu Asn Thr Gln  
290 295 300

<210> 9

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<211> 306
<212> PRT
<213> Homo sapiens

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<223> Trimerisation module from tetranectin

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<222> (59)..(63)
<223> Linker

<220>
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<222> (64)..(606)
<223> Mature Apo-AI

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Ser Pro Gly Thr Glu Pro Pro Thr Gln Lys Pro Lys Lys Ile Val Asn
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Ala Lys Lys Asp Val Val Asn Thr Lys Met Phe Glu Glu Leu Lys Ser
20 25 30

Arg Leu Asp Thr Leu Ala Gln Glu Val Ala Leu Leu Lys Glu Gln Gln
35 40 45

Ala Leu Gln Thr Val Ser Leu Lys Gly Ser Lys Val His Met Lys Asp
50 55 60

Glu Pro Pro Gln Ser Pro Trp Asp Arg Val Lys Asp Leu Ala Thr Val
65 70 75 80

Tyr Val Asp Val Leu Lys Asp Ser Gly Arg Asp Tyr Val Ser Gln Phe
85 90 95

Glu Gly Ser Ala Leu Gly Lys Gln Leu Asn Leu Lys Leu Leu Asp Asn
100 105 110

Trp Asp Ser Val Thr Ser Thr Phe Ser Lys Leu Arg Glu Gln Leu Gly
115 120 125

Pro Val Thr Gln Glu Phe Trp Asp Asn Leu Glu Lys Glu Thr Glu Gly
130 135 140

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Leu Arg Gln Glu Met Ser Lys Asp Leu Glu Glu Val Lys Ala Lys Val  
145 150 155 160

Gln Pro Tyr Leu Asp Asp Phe Gln Lys Lys Trp Gln Glu Glu Met Glu  
165 170 175

Leu Tyr Arg Gln Lys Val Glu Pro Leu Arg Ala Glu Leu Gln Glu Gly  
180 185 190

Ala Arg Gln Lys Leu His Glu Leu Gln Glu Lys Leu Ser Pro Leu Gly  
195 200 205

Glu Glu Met Arg Asp Arg Ala Arg Ala His Val Asp Ala Leu Arg Thr  
210 215 220

His Leu Ala Pro Tyr Ser Asp Glu Leu Arg Gln Arg Leu Ala Ala Arg  
225 230 235 240

Leu Glu Ala Leu Lys Glu Asn Gly Gly Ala Arg Leu Ala Glu Tyr His  
245 250 255

Ala Lys Ala Thr Glu His Leu Ser Thr Leu Ser Glu Lys Ala Lys Pro  
260 265 270

Ala Leu Glu Asp Leu Arg Gln Gly Leu Leu Pro Val Leu Glu Ser Phe  
275 280 285

Lys Val Ser Phe Leu Ser Ala Leu Glu Glu Tyr Thr Lys Lys Leu Asn  
290 295 300

Thr Gln  
305

<210> 10  
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<220>  
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<223> Tetranectin based linker

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Ser Pro Gly Thr Glu Pro Pro Thr Gln Lys Pro Lys Lys Ile Val Asn  
 1 5 10 15

Ala Lys Lys Asp Val Val Asn Thr Lys Met Phe Glu Glu Leu Lys Ser  
 20 25 30

Arg Leu Asp Thr Leu Ala Gln Glu Val Ala Leu Leu Lys Glu Gln Gln  
 35 40 45

Ala Leu Gln Thr Val Ser Leu Lys Gly Thr Lys Val His Met Lys Asp  
 50 55 60

Glu Pro Pro Gln Ser Pro Trp Asp Arg Val Lys Asp Leu Ala Thr Val  
 65 70 75 80

Tyr Val Asp Val Leu Lys Asp Ser Gly Arg Asp Tyr Val Ser Gln Phe  
 85 90 95

Glu Gly Ser Ala Leu Gly Lys Gln Leu Asn Leu Lys Leu Leu Asp Asn  
 100 105 110

Trp Asp Ser Val Thr Ser Thr Phe Ser Lys Leu Arg Glu Gln Leu Gly  
 115 120 125

Pro Val Thr Gln Glu Phe Trp Asp Asn Leu Glu Lys Glu Thr Glu Gly  
 130 135 140

Leu Arg Gln Glu Met Ser Lys Asp Leu Glu Glu Val Lys Ala Lys Val  
 145 150 155 160

Gln Pro Tyr Leu Asp Asp Phe Gln Lys Lys Trp Gln Glu Glu Met Glu  
 165 170 175

Leu Tyr Arg Gln Lys Val Glu Pro Leu Arg Ala Glu Leu Gln Glu Gly  
 180 185 190

Ala Arg Gln Lys Leu His Glu Leu Gln Glu Lys Leu Ser Pro Leu Gly  
 195 200 205

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Glu Glu Met Arg Asp Arg Ala Arg Ala His Val Asp Ala Leu Arg Thr  
210 215 220

His Leu Ala Pro Tyr Ser Asp Glu Leu Arg Gln Arg Leu Ala Ala Arg  
225 230 235 240

Leu Glu Ala Leu Lys Glu Asn Gly Gly Ala Arg Leu Ala Glu Tyr His  
245 250 255

Ala Lys Ala Thr Glu His Leu Ser Thr Leu Ser Glu Lys Ala Lys Pro  
260 265 270

Ala Leu Glu Asp Leu Arg Gln Gly Leu Leu Pro Val Leu Glu Ser Phe  
275 280 285

Lys Val Ser Phe Leu Ser Ala Leu Glu Glu Tyr Thr Lys Lys Leu Asn  
290 295 300

Thr Gln  
305

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Ser Pro Gly Thr Glu Pro Pro Thr Gln Lys Pro Lys Ala Ile Val Asn  
1 5 10 15

Ala Lys Ala Asp Val Val Asn Thr Lys Met Phe Glu Glu Leu Lys Ser  
20 25 30

Arg Leu Asp Thr Leu Ala Gln Glu Val Ala Leu Leu Lys Glu Gln Gln  
35 40 45

Ala Leu Gln Thr Val Ser Leu Lys Gly Thr Lys Val His Met Lys Asp  
50 55 60

Glu Pro Pro Gln Ser Pro Trp Asp Arg Val Lys Asp Leu Ala Thr Val  
65 70 75 80

Tyr Val Asp Val Leu Lys Asp Ser Gly Arg Asp Tyr Val Ser Gln Phe  
85 90 95

Glu Gly Ser Ala Leu Gly Lys Gln Leu Asn Leu Lys Leu Leu Asp Asn  
100 105 110

Trp Asp Ser Val Thr Ser Thr Phe Ser Lys Leu Arg Glu Gln Leu Gly  
115 120 125

Pro Val Thr Gln Glu Phe Trp Asp Asn Leu Glu Lys Glu Thr Glu Gly  
130 135 140

Leu Arg Gln Glu Met Ser Lys Asp Leu Glu Glu Val Lys Ala Lys Val  
145 150 155 160

Gln Pro Tyr Leu Asp Asp Phe Gln Lys Lys Trp Gln Glu Glu Met Glu  
165 170 175

Leu Tyr Arg Gln Lys Val Glu Pro Leu Arg Ala Glu Leu Gln Glu Gly  
180 185 190

Ala Arg Gln Lys Leu His Glu Leu Gln Glu Lys Leu Ser Pro Leu Gly  
195 200 205

Glu Glu Met Arg Asp Arg Ala Arg Ala His Val Asp Ala Leu Arg Thr  
210 215 220

His Leu Ala Pro Tyr Ser Asp Glu Leu Arg Gln Arg Leu Ala Ala Arg  
225 230 235 240

Leu Glu Ala Leu Lys Glu Asn Gly Gly Ala Arg Leu Ala Glu Tyr His  
245 250 255

Ala Lys Ala Thr Glu His Leu Ser Thr Leu Ser Glu Lys Ala Lys Pro  
260 265 270

Ala Leu Glu Asp Leu Arg Gln Gly Leu Leu Pro Val Leu Glu Ser Phe  
275 280 285

Lys Val Ser Phe Leu Ser Ala Leu Glu Glu Tyr Thr Lys Lys Leu Asn  
290 295 300

Thr Gln  
305

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<311> 1998-06-11  
<312> 1998-12-17  
<313> (1)..(51)

<400> 12

Glu Pro Pro Thr Gln Lys Pro Lys Lys Ile Val Asn Ala Lys Lys Asp  
1 5 10 15

Val Val Asn Thr Lys Met Phe Glu Glu Leu Lys Ser Arg Leu Asp Thr  
20 25 30

Leu Ala Gln Glu Val Ala Leu Leu Lys Glu Gln Gln Ala Leu Gln Thr  
35 40 45

Val Cys Leu  
50

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<400> 13

Ser Pro Gly Thr Glu Pro Pro Thr Gln Lys Pro Lys Lys Ile Val Asn  
1 5 10 15

Ala Lys Lys Asp Val Val Asn Thr Lys Met Phe Glu Glu Leu Lys Ser  
20 25 30

Arg Leu Asp Thr Leu Ala Gln Glu Val Ala Leu Leu Lys Glu Gln Gln  
35 40 45

Ala Leu Gln Thr Val Ser Leu Lys Gly Ser  
50 55

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<223> Hp(alpha) residues

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<222> (87)..(329)  
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<400> 14

Gly Val Asp Ser Gly Asn Asp Val Thr Asp Ile Ala Asp Asp Gly Cys  
1 5 10 15

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Pro Lys Pro Pro Glu Ile Ala His Gly Tyr Val Glu His Ser Val Arg  
20 25 30

Tyr Gln Cys Lys Asn Tyr Tyr Lys Leu Arg Thr Glu Gly Asp Gly Val  
35 40 45

Tyr Thr Leu Asn Asn Glu Lys Gln Trp Ile Asn Lys Ala Val Gly Asp  
50 55 60

Lys Leu Pro Glu Cys Glu Ala Val Ala Gly Lys Pro Lys Asn Pro Ala  
65 70 75 80

Asn Pro Val Gln Arg Ser Asp Glu Pro Pro Gln Ser Pro Trp Asp Arg  
85 90 95

Val Lys Asp Leu Ala Thr Val Tyr Val Asp Val Leu Lys Asp Ser Gly  
100 105 110

Arg Asp Tyr Val Ser Gln Phe Glu Gly Ser Ala Leu Gly Lys Gln Leu  
115 120 125

Asn Leu Lys Leu Leu Asp Asn Trp Asp Ser Val Thr Ser Thr Phe Ser  
130 135 140

Lys Leu Arg Glu Gln Leu Gly Pro Val Thr Gln Glu Phe Trp Asp Asn  
145 150 155 160

Leu Glu Lys Glu Thr Glu Gly Leu Arg Gln Glu Met Ser Lys Asp Leu  
165 170 175

Glu Glu Val Lys Ala Lys Val Gln Pro Tyr Leu Asp Asp Phe Gln Lys  
180 185 190

Lys Trp Gln Glu Glu Met Glu Leu Tyr Arg Gln Lys Val Glu Pro Leu  
195 200 205

Arg Ala Glu Leu Gln Glu Gly Ala Arg Gln Lys Leu His Glu Leu Gln  
210 215 220

Glu Lys Leu Ser Pro Leu Gly Glu Glu Met Arg Asp Arg Ala Arg Ala  
225 230 235 240

His Val Asp Ala Leu Arg Thr His Leu Ala Pro Tyr Ser Asp Glu Leu  
245 250 255

Arg Gln Arg Leu Ala Ala Arg Leu Glu Ala Leu Lys Glu Asn Gly Gly  
260 265 270

Ala Arg Leu Ala Glu Tyr His Ala Lys Ala Thr Glu His Leu Ser Thr  
275 280 285

Leu Ser Glu Lys Ala Lys Pro Ala Leu Glu Asp Leu Arg Gln Gly Leu  
290 295 300

Leu Pro Val Leu Glu Ser Phe Lys Val Ser Phe Leu Ser Ala Leu Glu  
305 310 315 320

Glu Tyr Thr Lys Lys Leu Asn Thr Gln  
325

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